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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/985,837	11/06/2001	Hiroki Kuribayashi	041465-5125	4413
9629	7590	03/23/2005	EXAMINER	
MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004			PERUNGAVOOR, VENKATANARAY	
			ART UNIT	PAPER NUMBER

2132

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/985,837

Applicant(s)

KURIBAYASHI ET AL.

Examiner

Venkatanarayanan Perungavoor

Art Unit

2132

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) ~~1-14~~ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specifications***

1. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

*The Applicant's placement of Foreign Priority information on Page 30 Line 21-24 is incorrect as it should be listed after TITLE OF THE INVENTION and before BACKGROUND OF THE INVENTION. Appropriate correction required.*

2. On Page 1 Line 14, the Applicant mentions "resister", the examiner believes the applicant meant "register". Appropriate correction required.

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Method and Apparatus of data recording using scrambling input data based on maximum-length sequences.

#### ***Claim Objections***

4. Claim 4, 7, 8, 11 is objected because of this minor informalities: The applicant indicates an ";" after wherein on Page 32 Line 18, Page 34 Line 13, Page 34 Line 22, Page 36 Line 4 respectively, the examiner believes the applicant meant ":". Appropriate correction required.

#### ***Claim Rejections – 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 5 and 12 recites the limitation "the sixteen" in Page 33 Line 26 and Page 36 Line 16 respectively. There is insufficient antecedent basis for this limitation in the claim.

#### ***Claim Rejections - 35 USC § 102***

Art Unit: 2132

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 1-3, 5-6, 8-10, 12-14 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5323244 to Yamaguchi et al.

9. Regarding Claim 1,

A data recording method of scrambling input data based on Maximum-length sequences that are generated by n sequences that are generated by n-degree primitive polynomials, comprising :  
a selecting process for selecting specific Maximum-length sequences, based on recording position data, from among Maximum-length sequences that are generated by a plurality primitive polynomials of said n-degree primitive polynomials having m number ( $m < n$ ) of non-zero coefficients is met by Yamaguchi et al. see Col 7 Line 3-29;  
and based on Maximum-length a scrambling process for scrambling input data according the Maximum-length sequences to generate recording data is met by Yamaguchi et al. see Col 7 Line 30-35.

10. Regarding Claim 2,

A data recording method of scrambling input data Maximum-length sequences that are generated by based on n-degree primitive polynomials, comprising :  
selecting, process for selecting a Maximum-length sequences is selected, position data, from among Maximum-length sequences that are generated by a plurality primitive polynomials of said n-degree primitive polynomials whose k number( $k < n$ ) of coefficients all become zero in order starting from the coefficient o f the largest degree is met by Yamaguchi et al. see Col 7 Line 3-29; and a scrambling process according to the specific based on recording scrambling input data according to Maximum-length sequences to generate recording data is met by Yamaguchi et al. see Col 7 Line 30-35.

Art Unit: 2132

## 11. Regarding Claim 3,

A data recording method of scrambling input data based on Maximum-length sequences that are generated by  $n$  - degree primitive polynomials, comprising :  
a selecting a specific Maximum-length sequences is selected, based on recording position data, from among a specified number of said Maximum-length sequences that generated by two arbitrary primitive polynomials of said  $n$ -degree primitive polynomials and from which combinations having large correlation between pairs Maximum-length sequences have been excluded is met by Yamaguchi et al. see Col 7 Line 3-29; and selecting process a scrambling process for scrambling input data according the Maximum-length sequences generate recording data is met by Yamaguchi et al. see Col 7 Line 30-35.

## 12. Regarding Claim 6,

A data recording apparatus for scrambling input data based on Maximum-length sequences that are generated by  $n$ -degree primitive polynomials, said apparatus comprising :  
selecting device which selects specific Maximum-length sequences based on recording position data from among Maximum-length sequences that are generated plurality of primitive polynomials said  $n$ -degree primitive polynomials having  $m$  number ( $m < n$ ) of non-zero coefficients is met by Yamaguchi et al. see Col 7 Line 3-29; and scrambling device which scrambles input data according to the Maximum-length sequences generate recording data is met by Yamaguchi et al. see Col 7 Line 30-35.

## 13. Regarding Claim 8,

A data recording apparatus for scrambling input data based on Maximum-length sequences that are generated by  $n$ -degree primitive polynomials, said apparatus comprising:  
selecting device which selects specific Maximum-length sequences based recording position data from among Maximum-length sequences that are generated by a plurality of primitive polynomials of said  $n$ -degree primitive polynomials whose  $k$  number ( $k < n$ ) of coefficients all become zero in order starting from the coefficient of the largest degree is met by Yamaguchi et al. see Col 7 Line 3-29; and a scrambling device which scrambles input data according to the Maximum-length sequences to generate recording data is met by Yamaguchi et al. see Col 7 Line 30-35.

## 14. Regarding Claim 9,

The data recording apparatus according to claim 8, said apparatus

Art Unit: 2132

further comprises a dividing and executing device for dividing and executing the scrambling calculation process, which corresponds to one degree of said primitive polynomials, in a plurality of stages is met by Yamaguchi et al. Col 6 Line 46-64.

15. Regarding Claim 10,

A data recording apparatus for scrambling input data based on Maximum-length sequences that are generated n-degree primitive polynomials, said apparatus comprising:

selecting device for selecting specific Maximum-length sequences based recording position data from among specified number of said Maximum-length sequences that generated two arbitrary primitive polynomials of said n-degree primitive polynomials and from which combinations having large correlation between pairs of Maximum-length sequences have been excluded is met by Yamaguchi et al. see Col 7 Line 3-29; and scrambling device which scrambles input data according to Maximum-length sequences generate recording data is met by Yamaguchi et al. see Col 7 Line 30-35.

16. Regarding Claim 5 and Claim 12, Yamaguchi et al. discloses the primitive polynomial being of any degree see Column 7 Line 8-14 & Column 7 Line 26-29.

17. Regarding Claim 13,

A data reproduction method of descrambling input data based Maximum-length sequences that are generated by n-degree primitive polynomials, comprising: a descrambling process for descrambling said input data that were scrambled by the data recording method of the claim 1 by Maximum-length sequences which were selected during scrambling is met by Yamaguchi et al. see Col 6 Line 4-13 & Col 7 Line 3-29 and a generating process for generating reproduced data see Col 5 Line 45-55.

18. Claim 14 is rejected under the same rationale as Claim 13 above.

***Claim Rejections 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2132

20. Claim 4,7,11 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent 5323244 to Yamaguchi et al. in view of U.S. Patent 5867475 to Moriya et al.

21. Regarding Claim 4, Yamaguchi et al. does not disclose the use of disk-shaped recording medium. However, Moriya et al. discloses the use of disk-shaped recording medium and recording in order and maximum-length sequence are selected and scrambling is performed on adjacent tracks see Col 4 Line 58-66 & Figure 1. It would be obvious to one having ordinary skill in the art at the time of the invention to include a disk-shaped medium of Moriya et al in the invention of Yamaguchi et al. in order to provide for better track control as taught in see Col 4 Line 62-65.

22. Regarding Claim 7, Yamaguchi et al. does not disclose the use of feedback in generating the sequences. However, Moriya et al. disclose a feedback switching device output bits that correspond sequences[Fig 5 item 116 &118] ; and for selecting m number of said Maximum-length a switching device which switches the feedback bit[Col 3 Line 47-59 & Col 12 Line 52-60 & Fig 13 item Sf0]. It would be obvious to one having ordinary skill in the art at the time of the invention to include an feedback switching circuit of Moriya et al. in the invention of Yamaguchi et al. in order to take advantage of the initial start value and without the further need for more inputs.

23. Claim 11 is rejected under the same rationale as Claim 4 above.



Art Unit: 2132

**Conclusion**


24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Venkatanarayanan Perungavoor whose telephone number is 571-272-7213. The examiner can normally be reached on 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Venkatanarayanan Perungavoor  
Examiner  
Art Unit 2132

VP  
3/15/05

  
GILBERTO BARRON JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

Application/Control Number: 09/985,837  
Art Unit: 2132

Page 9